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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,515	03/08/2001	Yasuhiro Yagi	010251	5071

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EXAMINER

BARBEE, MANUEL L

ART UNIT	PAPER NUMBER
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2857

DATE MAILED: 11/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/800,515

Applicant(s)

YAGI ET AL.

Examiner

Manuel L. Barbee

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-- Th MAILING DATE of this communication appears on th cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 9 and 22 are rejected under 35 U.S.C. 102(a) as being anticipated by Japanese Patent Publication No. 2000040838 assigned to Toshiba (hereafter "Toshiba").

With regard to diagnosing the normality/abnormality of the output of a photovoltaic power system based on a past measurement result of the photovoltaic power system, as shown in claim 9, Toshiba teaches comparing the electric power of a solar battery in a solar power plant with a predetermined theoretical value (Abstract).

With regard to storing a measurement result of a photovoltaic power system and diagnosing the abnormality/normality of the photovoltaic power system based on the measurement, as shown in claim 22, Toshiba teaches comparing the electric power of a solar battery in a solar power plant with a predetermined theoretical value using a calculator which implies computer that inherently contains a storage means for values and instructions for operating on the values. (Abstract).

3. Claims 22 and 23 are rejected under 35 U.S.C. 102(a) as being anticipated by Japanese Patent Publication No. 2000022192 assigned to Mitsubishi Electric Corp. (hereafter "Mitsubishi").

With regard to storing a measurement result of a photovoltaic power system and diagnosing the abnormality/normality of the photovoltaic power system based on the measurement, as shown in claim 22, Mitsubishi teaches using a decision unit to compare a measured value to a preset value to determine if snow is covering the light receiving surface, which would be an abnormality (Abstract). The decision unit implies a computer that inherently contains a storage means for values and instructions for operating on the values. With regard to determining the cause of the abnormality, as shown in claim 23, Mitsubishi patent determining whether snow is covering the light receiving surface.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-8, 10-21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsubishi in view of Takeda (US Patent No. 5,594,313).

With regard to measuring an output characteristic of a photovoltaic power system and comparing the measurement with a reference characteristic and diagnosing the normality/abnormality of the photovoltaic power system, as shown in claims 1, 5, 10, 15, 16 and 19, Mitsubishi teaches measuring the output voltage of a solar battery and comparing it to a preset value in a decision unit to determine if snow is covering the light receiving surface, which would be an abnormality (Abstract).

Mitsubishi does not teach that the reference characteristic is obtained or calculated in accordance with an installation condition using a past measurement, as shown in claims 1, 5, 10, 15 and 16. Mitsubishi does not teach obtaining a reference measurement using a second photovoltaic power system, as shown in claim 15. Mitsubishi does not teach an input unit for accepting an input of an installation condition, as shown in claim 19. Takeda teaches calculating the capacity of a solar cell system taking into account the installation site (col. 1, lines 10-52). Takeda teaches allowing a correction factor to take into account variations in the installation site (col. 1, lines 24-33). The correction factor would allow for the input of installation conditions. The Examiner takes official notice that it is well known to use a separate reference device to determine reference values to be used in testing other devices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the snow coverage detector, as taught by Mitsubishi, to include calculating the capacity in many installation conditions as taught by Takeda, because then the solar cell would have been used in many installation sites (col. 2, lines 36-41). It would further have been obvious to one of ordinary skill in the art at the time the invention was made to modify the snow coverage detector, as taught by Mitsubishi to use a reference device to set the reference value, because then the reference would have been stored before the system being used was installed.

With regard to diagnosing the cause, as shown in claims 3, 7 and 13, Mitsubishi teaches determining whether snow is covering the light receiving surface (Abstract). With regard to the output characteristic including direct current voltage, as shown in

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claims 4, 8 and 14, Mitsubishi teaches measuring the output voltage of the solar battery (Abstract). With regard to a storage unit, as shown in claims 17 and 20, Mitsubishi teaches using a decision unit (Abstract). The decision unit implies a computer that inherently contains a storage means for values and instructions for operating on the values.

Mitsubishi does not teach an installation condition, as shown in claims 2 and 6, or that the reference output is obtained differently for each period of time among a plurality of periods gained by dividing a year, as shown in claim 11. Takeda teach taking into account the seasons and latitude or direction (col. 1, lines 16-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the snow coverage detector, as taught by Mitsubishi to include calculating the capacity in many installation conditions as taught by Takeda, because then the solar cell would have been used in many installation sites (col. 2, lines 36-41).

Mitsubishi does not teach excluding the measurement from subsequent reference output characteristic when the measurement is abnormal and including the measurement when it is normal, as shown in claim 12. The Examiner takes official notice that it is well known to only include normal measurements in reference calculations. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the snow coverage detector, as taught by Mitsubishi, to calculate the reference including only normal measurements, because then the reference value would not have been skewed by an abnormal measurement.

Mitsubishi does not teach solar radiation measurement, as shown in claims 18, 21 and 24. Takeda teaches measuring solar radiation (col. 1, lines 17-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the snow coverage detector, as taught by Mitsubishi to include calculating the capacity in many installation conditions as taught by Takeda, because then the solar cell would have been used in many installation sites (col. 2, lines 36-41).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jaster (US Patent No. 4,571,532) teaches a photovoltaic power regulation system.

Takahashi et al. (US Patent No. 4,636,931) teach a photovoltaic power control system.

Nakajima (US Patent No. 4,649,334) teaches controlling a photovoltaic power system.

Gardner (US Patent No. 4,755,942) teaches detecting solar insolation.

Mouilhayr (FR 2439392 A) teaches measuring the performance of solar panels.

Guicherd (FR 2445955 A) teaches a pyrometer for solar radiation measurement.

Yoshizo (JP 62100819) teaches an inverter controller for photovoltaic power.

Kajimoto et al. (JP 01135078 A) teach a diagnostic apparatus for a solar cell.

Taniguchi (JP 10091259 A) teaches an output power control method for a solar battery.


Beovic et al. (Proceedings IEEE SOUTHEASTCON '97) teaches monitoring a roof-mounted photovoltaic array.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manuel L. Barbee whose telephone number is 703-308-0979. The examiner can normally be reached on Monday-Friday from 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on 703-308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0976.

mlb
November 15, 2002


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800